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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,443	12/30/1999	RAJEEV K. NALAWADI	042390.P6349	7862

7590

10/14/2003

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EXAMINER

VO, TIM T

ART UNIT	PAPER NUMBER
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2189

DATE MAILED: 10/14/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/476,443

Applicant(s)

NALAWADI, RAJEEV K.

Examiner

Tim T. Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-13 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-13, 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-9, 11-13 and 15 are presented for examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,5 and 15 rejected under 35 U.S.C. 102(b) as being anticipated by Young U.S Patent No. 5,619,706. Young discloses a method and system that includes the use of two different and separate interrupt controllers which receive two different interrupt requests that transfer initializing data and, when needed, re-routes an interrupt request from one controller to other interrupt controller in order for the second interrupt controller to service the first type of interrupt (column 7, claim 1). The system also includes a memory subsystem that stores information and instructions for the processors to manage interrupts in the system (column 4, line 45).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 2-4 and 6-9, 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young U.S Patent No. 5,619,706 as applied to claims 1,5,15 above, in view of Tavallaei et al. U.S. Patent No. 5,987,538. Referring to claims 2, 3, 6, 7, 11 and 12 Young discloses a method and system that includes the use of two different and separate interrupt controllers which receive two different interrupt requests that transfer initializing data and, when needed, re-routes an interrupt request from one controller to other interrupt controller in order for the second interrupt controller to service the first type of interrupt but does not disclose configuring a system management interrupt (SMI) to recognize the initializing data of a first interrupt type. However, Tavallaei et al. teaches the use of programmable data entries, which provide information necessary to format an interrupt message or request (column 7, line 56). The entries are made up of vectors such as a vector field, a delivery mode field, destination field and a field for other purposes or otherwise reserved (column 8, 4th paragraph). Tavallaei also teaches the generation of interrupt messages such as a SMI (column 4, line 65). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Young's invention to include such programmable data entries in the interrupt requests transferred to the interrupt controllers in order to include initializing data in the fields of the entry such as configuration instructions for the controllers and for the generation of SMIs.

Referring to claims 4, 8 and 13, Young further teaches a method and system that includes a first interrupt controller (circuit) which includes a programmable interrupt controller (PIC) and an advanced interrupt controller (APIC)(column 8, claim 8). It is well

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known that an 82C59 controller is a programmable interrupt controller and can be used in such a system.

Referring to claim 9, Young further discloses a system comprising a plurality of processors, a memory subsystem and a bridge element (column 4, line 36). Young also states that the system may employ some or all of the components mentioned and also include different components than those illustrated (column 5, column 1). Tavallaei et al. teaches a system where a peripheral component, such as a memory device, is coupled to a second-type interrupt controller (column 9, line 61). Tavallaei also teaches coupling a first-type interrupt controller to a second-type interrupt controller (column 9, line 58). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Young's invention to include such a peripheral component, such as a memory device, coupled to the second-type interrupt controller in order to store instructions to service first-type interrupt request and also to couple a first-type interrupt controller to a second-type interrupt controller in order to communicate interrupt messages between both controllers.

Response to Arguments

4. Applicant's arguments filed 08/04/03 have been fully considered but they are not persuasive.

5. In the remarks filed on 04/24/03, page 6 point I, applicant acknowledges that "the Examiner states that Young teaches the transferring of initializing data for peripheral devices and components in interrupts by interrupt controllers and rerouting these interrupts containing initializing data to another interrupt controller" and did not raise

arguments on this issue. The statement above clearly anticipates the claim's language 1, 5, and 15. For example, claim 1 similar to claim 5 and 15 indicated "sending interrupt controller initializing data to a first controller". Figure 3, Young discloses interrupt controller chip 375 receives interrupts from the Interrupt Controller Communication (ICC) bus and interrupts IRQ21 to IRQ2p via line 405. Further, Young teaches these interrupts request may include, but are not limited to, initialization of the multi-processor system (column 2 lines 58-60). "re-routing the interrupt controller initializing data to a second interrupt controller". Column 6 lines 43-67, Young teaches rerouting interrupts from the interrupt controller chip 375 to the second interrupt controller chip 350 by switching circuit 385. These facts clearly anticipated the claims invention.

6. The applicant argued that the amended claims as amended clarify that "the initializing data being sent and rerouted is initializing data for an interrupt controller". This feature is not found in the amended claims. The amended claims do not disclose the initializing data initializing for an interrupt controller. Therefore, this argument is moot.

7. In response to the applicant arguments for combining the teachings of Tavallaei failed to provide any motivation. In the office action stated that Young lacks of "configuring a system management interrupt (SMI) to recognize the initializing data of a first interrupt type". This feature described on pages 11-12 of the current specification. The SMI is configured to recognize and trap a configuring 82C59 address, such as one of the identified initialization command words. Further on page 13, the current invention describes the SMI operations, "Once the SMI locates the first configuring address, the

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SMI then locates the remaining configuring addresses (block 530). An SMI vector handler is then generated to direct the appropriate processor to find the interrupt (block 540). The SMI vector handler is generated, and SMI vector is passed to the appropriate processor (block 550). In response to the SMI vector, the processor re-routes configuring addresses to the I/O APIC (block 560)". Tavallaei et al. teaches the use of programmable data entries, which provide information necessary to format an interrupt message or request (column 7, line 56). The entries are made up of vectors such as a vector field, a delivery mode field, destination field and a field for other purposes or otherwise reserved (column 8, 4th paragraph). Tavallaei also teaches the generation of interrupt messages such as a SMI (column 4, line 65). These teachings are equivalent to the SMI operations of the current invention as described above. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Young's invention to include such programmable data entries in the interrupt requests transferred to the interrupt controllers in order to include initializing data in the fields of the entry such as configuration instructions for the controllers and for the generation of SMIs.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim T. Vo whose telephone number is 703-308-5862. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Rinehart can be reached on 703-305-4815. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2100.

A handwritten signature in black ink, appearing to read 'Tim Vo', with a long, sweeping horizontal line extending to the left.

Tim T. Vo
Examiner
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T.V
October 9, 2003